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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,506	10/01/2003	Robert A. DiChiara JR.	038190/262872	8545

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EXAMINER
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SALVATORE, LYNDIA

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/676,506

Applicant(s)

DICHIARA, ROBERT A.

Examiner

Lynda M. Salvatore

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-27 is/are pending in the application.
- 4a) Of the above claim(s) 11-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-10, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment and accompanying remarks filed 10/02/06 have been fully considered and entered. Claims 1 and 9 have been amended as requested and claim 6 is canceled. Applicant's amendments to claims 1 and 9 are found sufficient to overcome the rejections of claims 1-5,7-10, 26 and 27 rejected under 35 U.S.C. 103(a) as obvious over Bompard et al., US 6,585, 842 in view of De Jager, US 5,439,627. Specifically, the combination of prior art fails to teach the claimed density range. However, upon further consideration, Applicant's amendments are not found patently distinguishable over the combination of Bompard et al., US 6,585, 842 in view of De Jager, US 5,439,627 and further in view of Olson et al., US 5, 273,821. The following new ground of rejection is set forth herein below.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-5,7-10, 26 and 27 are rejected under 35 U.S.C. 103(a) as obvious over Bompard et al., US 6,585, 842 in view of De Jager, US 5,439,627 and further in view of Olson et al., US 5, 273,821.

The patent issued to Bompard et al., teach forming a plurality of unidirectional sheets from continuous and discontinuous ceramic or glass filaments (abstract and column 8, 15-30). With regard to the rigid batting board limitation, Bompard et al., teach joining the plurality of sheets together and impregnating with an epoxy resin to form composite materials suitable to use as masts for boats (column 20, 19-25 and 53-58). With regard to the binder limitations, Bompard

Art Unit: 1771

et al., teach fixing the sheet with a bonding agent (column 10, 9-24). Suitable bonding agents include water-soluble polyvinyl alcohol (column 9, 24-40). Suitable ceramic fibers include alumina and silica (column 8, 18-25). With regard to claim 7, Bompard et al., teach that the sheet can be a mixture of different kinds of fibers or hybrid filaments comprising a mixture of different fiber materials (column 8, 15-30). Since, Bompard et al., teach continuous and discontinuous ceramic fibers, the Examiner considers such a disclosure sufficient to meet the limitation of a sheet comprising chopped and continuous fibers (column 8, 15-30). With regard to claim 26, Bompard et al., teach multi-layer or stacked composites (column 17, 65-column 18, 30). The Examiner considers a multi-layer structure sufficient to meet the limitation of providing two or more layers of ceramic fibers. With regard to claim 27, Bompard et al., teach a plurality of sheets comprising continuous, discontinuous and/or mixtures of hybrid fibers. As such, it is the position of the Examiner that the limitation of a board comprising at least one layer of continuous ceramic fibers and at least one layer of chopped ceramic fibers is encompassed by the teachings of Bompard et al. Said reinforcing plies are used to make composite parts (column 1, 10-20).

Bompard et al., fails to teach the claimed binder material, however, the patent issued to the patent issued to De Jager teaches a composite laminate comprising a mixture of aligned continuous and chopped ceramic filaments (column 1, 19-35, column 2, 50-55, column 3, 10-30, column 5, 25-35). De Jager teaches employing water-soluble methylcellulose binder to hold the filaments and/or particles together (column 5, 55-column 6, 25).

It is the position of the Examiner that it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the water soluble methylcellulose binder of De Jager as the bonding agent in the unidirectional sheets of Bompard et al. The

Examiner takes Official Notice of the equivalence of water soluble polyvinyl alcohol binder and water soluble methylcellulose binder for their use in the field of reinforced laminated composite sheets. The selection of any of these known equivalents to form a composite structure would be within the level of one of ordinary skill in the art.

With regard to the limitations pertaining to the reverse thermal gelation properties, although De Jager., does not specifically teach reverse thermal gelation it is reasonable to presume that said property is inherent to the water soluble methylcellulose binder taught by De Jager. Support for said presumption is found in the use of like materials such methylcellulose, which would result in the claimed reverse gelation properties. The burden is shifted to Applicant to prove otherwise.

With regard to claim 10, the combination of prior art fails to teach the claimed binder content, however, De Jager does teach a binder content of 30% by volume in example 1 (column 10, 45-50). It would have been obvious to one having ordinary skill in the art at the time the invention was to optimize the amount of binder as a function of desired bond strength, toughness, and flexibility. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272,205 USPQ 215 (CCPA 1980).

With regard to claims 1 and 9, the combination of prior art does not teach the claimed density range, however, the patent issued to Olson et al., teach a high strength ceramic fiberboard having a density of less than 22 lbs/ft<sup>3</sup> (abstract). Said fiberboard is used in the formation of high temperature insulation boards (column 1, 9-13).

Therefore, motivated by the desire to form a composite fiber board suitable for use where high strength is desired, it would have been obvious to one having ordinary skill in the art to form the ceramic composite board taught by the combination of Bompard et al., in view of De Jager having the density range taught by Olson et al.

***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynda M. Salvatore whose telephone number is 571-272-1482. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 5<sup>th</sup>, 2006

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